INFORMATION AND USER GUIDE FOR GENERIC SPECIFICATION SHELL WELDED STEEL PIPE (WSP) INSTALLATION BY TUNNELING AND JACKING

BACKGROUND INFORMATION

Over the last 4 or 5 years approximately 15 Welded Steel Pipe (WSP) Installations have been successfully completed by tunneling and jacking. This method of installation, in many cases has proven to be a viable alternative to conventional culvert installations, which require open cutting and expensive traffic detours. The majority of these installations have been for diameters up to 1.83 m (72 inch) in either single or multiple pipe installations. Currently, three contractors have horizontal boring machines that can handle diameters up to 1.83 m and consequently good competitive bids have been obtained.

More specialized methods are required for larger diameter pipes. For diameters larger than 1.83 m, one contractor has horizontal boring equipment that can handle diameters up to 2.5 m. For diameters larger than 2.8 m tunneling can be carried out inside the WSP with a modified bobcat while the WSP is continuously advanced by jacking.

Tunnel Boring Machines (TBM) can also be employed for larger diameter pipes, however this method is not very common because the equipment has to be rented from the United States and with high mobilization costs, significant tunneling lengths are required for cost viability.

Where boring equipment is used for tunneling, the tunneled dimension of the hole can be easily controlled thus simplifying the grouting procedures. Other methods of tunneling require more elaborate grouting procedures as noted in the specifications.

USER GUIDE

The specification shell is generic and the Consultant needs to add, delete or modify the various clauses for site specifics. For example new WSP installations may be adjacent to existing CSP's or SPCSP's which can be either grouted and closed off or may be lined and grouted with smaller diameter WSP's. Where applicable, user notes have been included with some of the clauses.

A sample drawing set is included to provide context for the shell specification and to aid the Consultant in his development of site specific specifications and drawings.